IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF HAWAI‘I

NATIONAL ASSOCIATION FOR GUN RIGHTS; RONDELLE AYAU; JEFFREY BRYANT, Plaintiffs, v. ANNE E. LOPEZ, in her official capacity as Attorney General for the State of Hawai‘i, Defendant.	Civil No. 1:22-cv-404-DKW-RT **DECLARATION OF LOUIS KLAREVAS**

DECLARATION OF LOUIS KLAREVAS

I, Louis Klarevas, declare under penalty of perjury that the following is true and correct:

1. I have been asked by the Department of the Attorney General, State of Hawaii, to prepare an expert declaration addressing the relationship between assault weapons, large-capacity magazines (LCMs), and mass shootings, including how restrictions on assault weapons and LCMs impact mass shooting violence. I am over the age of eighteen (18) years and this declaration is based on my own personal knowledge and experience. If I am called as a witness, I could and would testify competently to the truth of the matters discussed in this declaration.

EXHIBIT "5"

PROFESSIONAL QUALIFICATIONS

2. I am a security policy analyst and, currently, Research Professor at Teachers College, Columbia University, in New York. I am also the author of the book *Rampage Nation*, one of the most comprehensive studies on gun massacres in the United States.[1]

3. I am a political scientist by training, with a B.A. from the University of Pennsylvania and a Ph.D. from American University. My current research examines the nexus between American public safety and gun violence, including serving as an investigator in a study funded by the National Institutes of Health that is focused on reducing intentional shootings at elementary and secondary schools.

4. During the course of my 20-year career as an academic, I have served on the faculties of the George Washington University, the City University of New York, New York University, and the University of Massachusetts. I have also served as a Defense Analysis Research Fellow at the London School of Economics and Political Science and as United States Senior Fulbright Scholar in Security Studies at the University of Macedonia.

[1] Louis Klarevas, *Rampage Nation: Securing America from Mass Shootings* (2016).

5. In addition to having made well over 100 media and public-speaking appearances, I am the author or co-author of more than 20 scholarly articles and over 70 commentary pieces. In 2019, my peer-reviewed article on the effectiveness of restrictions on LCMs in reducing high-fatality mass shootings resulting in six or more victims killed was published in the *American Journal of Public Health*.[2] This study found that jurisdictions with LCM bans experienced substantially lower gun massacre incidence and fatality rates when compared to jurisdictions not subject to similar bans. Despite being over 3 years old now, this study continues to be one of the highest impact studies in academia. It was recently referred to as "the perfect gun policy study," in part due to the study's "robustness and quality."[3]

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[2] Louis Klarevas, et al., "The Effect of Large-Capacity Magazine Bans on High-Fatality Mass Shootings," 109 *American Journal of Public Health* 1754 (2019), *available at* https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305311 (last accessed February 11, 2023).

[3] Lori Ann Post and Maryann Mason, "The Perfect Gun Policy Study in a Not So Perfect Storm," 112 *American Journal of Public Health* 1707 (2022), *available at* https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2022.307120 (last accessed February 11, 2023). According to Post and Mason, "Klarevas et al. employed a sophisticated modeling and research design that was more rigorous than designs used in observational studies. Also, they illustrated the analytic steps they took to rule out alternative interpretations and triangulate their findings, for example examining both state bans and federal bans. They helped build the foundation for future studies while overcoming the limitations of previous research." *Ibid.*

6. In the past four years (since January 1, 2019), I have been deposed, testified in court, or testified by declaration in the following cases: *Duncan v. Becerra*, Case Number 17-cv-1017-BEN-JLB, United States District Court for the Southern District of California; *Miller v. Bonta*, Case No. 3:19-cv-1537-BEN-JBS, United States District Court for the Southern District of California; *Jones v. Bonta*, Case Number 19-cv-01226-L-AHG, United States District Court for the Southern District of California; *Nguyen v. Bonta*, Case No. 3:20-cv-02470-WQH-MDD, United States District Court for the Southern District of California; *Rupp v. Bonta*, Case Number 17-cv-00903-WBS-KJN, United States District Court for the Eastern District of California; *Brumback v. Ferguson*, Case Number 22-cv-03093-MKD, United States District Court for the Eastern District of Washington; *National Association for Gun Rights v. Highland Park*, Case Number 22-cv-04774, United States District Court for the Northern District of Illinois; *National Association for Gun Rights v. Campbell*, Case Number 22-cv-11431-FDS, United States District Court for the District of Massachusetts; *National Association for Gun Rights v. Lamont*, Case No. 3:22-cv-01118-JBA, United States District Court for the District of Connecticut; and *Oregon Firearms Federation v. Kotek*, Case No. 2:22-cv-01815-IM, United States District Court for the District of Oregon. This latter case includes three additional consolidated cases: *Fitz v. Rosenblum*, Case No. 3:22-cv-01859-IM, United States District Court for the District of Oregon; *Eyre v.*

Rosenblum, Case No. 3:22-cv-01862-IM, United States District Court for the District of Oregon; and *Azzopardi v. Rosenblum*, Case No. 3:22-cv-01869-IM, United States District Court for the District of Oregon.

7. In 2021, I was retained by the Government of Canada in the following cases which involved challenges to Canada's regulation of certain categories of firearms: *Parker and K.K.S. Tactical Supplies Ltd. v. Attorney General of Canada*, Federal Court, Court File No.: T-569-20; *Canadian Coalition for Firearm Rights, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-577-20; *Hipwell v. Attorney General of Canada*, Federal Court, Court File No.: T-581-20; *Doherty, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-677-20; *Generoux, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-735-20; and *Eichenberg, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-905-20. I testified under oath in a consolidated court proceeding involving all six cases in the Federal Court of Canada.

8. A true and correct copy of my current curriculum vitae is attached as **Exhibit A** to this declaration.

9. I have been retained by the Department of the Attorney General, State of Hawaii, to render expert opinions in this case. I will be compensated at a rate of $600 per hour for any testimony (in deposition and in court), and am being compensated at a rate of $480 per hour for all other services.

OPINIONS

10. It is my professional opinion, based upon my extensive review and analysis of the data, that (1) in terms of individual acts of intentional criminal violence, mass shootings presently pose the deadliest threat to the safety of American society in the post-9/11 era, and the problem is growing nationwide; (2) high-fatality mass shootings involving assault weapons and/or LCMs, on average, have resulted in a substantially larger loss of life than similar incidents that did not involve assault weapons and/or LCMs; (3) mass shootings resulting in double-digit fatalities are relatively modern phenomena in American history, largely related to the use of assault weapons and LCMs; and (4) states that restrict both assault weapons and LCMs experience fewer high-fatality mass shooting incidents and fatalities, per capita, than states that do not restrict assault weapons and LCMs. Based on these findings, it is my opinion that restrictions on assault weapons and LCMs have the potential to save lives by reducing the frequency and lethality of gun massacres.[4]

[4] For purposes of this declaration, mass shootings are defined in a manner consistent with my book *Rampage Nation*, *supra* note 1 (*see* Excerpt Attached as **Exhibit B**). "Mass shootings" are shootings resulting in four or more victims being shot (fatally or non-fatally), regardless of location or underlying motive. As a subset of mass shootings, "high-fatality mass shootings" (also referred to as "gun massacres") are defined as shootings resulting in 6 or more victims being shot to death, regardless of location or underlying motive. The data on high-fatality mass shootings is from a data set that I maintain and continuously update. This data set is reproduced in **Exhibit C**. Unless stated otherwise, all of the data used to

I. MASS SHOOTINGS ARE A GROWING THREAT TO PUBLIC SAFETY

11. Examining mass-casualty acts of violence in the United States since 1991 points to two disturbing patterns.[5] First, as demonstrated in Table 1, the deadliest individual acts of intentional criminal violence in the United States since the terrorist attack of September 11, 2001, have all been mass shootings. Second, as displayed in Figures 1-2, the problem of high-fatality mass shooting violence is on the rise. To put the increase over the last three decades into perspective, between the 1990s and the 2010s, the average population of the United States increased approximately 20%. However, when the number of people killed in high-fatality mass shootings in the 1990s is compared to the number killed in such incidents in the 2010s, it reflects an increase of 260%. In other words, the rise in mass shooting violence has far outpaced the rise in national population—by a factor of 13. The obvious takeaway from these patterns and trends is that mass shootings pose a significant—and growing—threat to American public safety.

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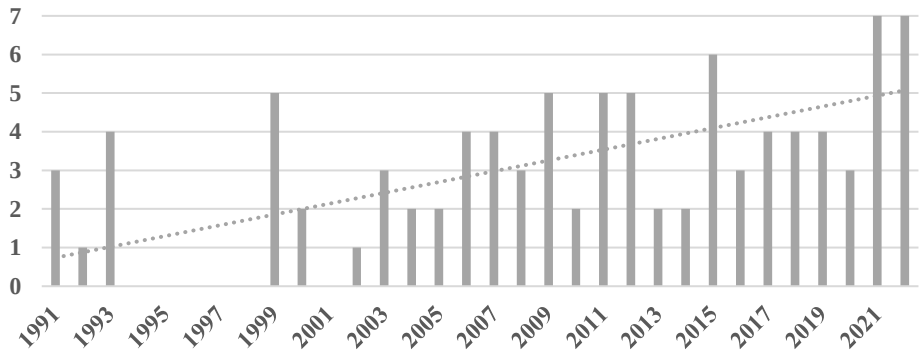
perform original analyses and to construct tables and figures in Sections I, II, and IV of this declaration are drawn from **Exhibit C**.

[5] Because the analysis in Section IV of this Declaration necessarily uses data from 1991 through 2022, for purposes of consistency (and to avoid any confusion), the analyses in Sections I and II also use data from 1991 through 2022.

Table 1. The Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11

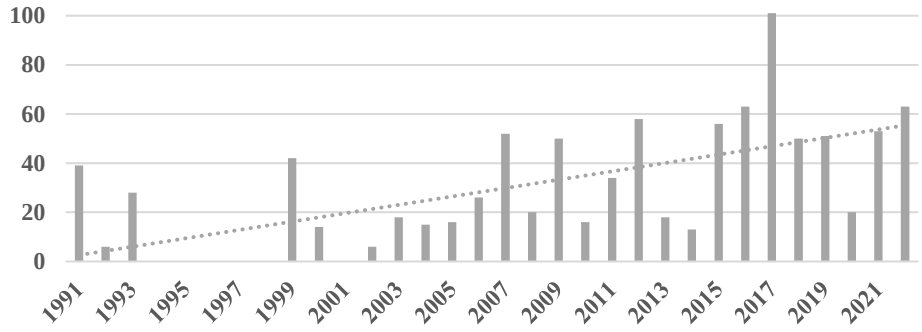
	Deaths	Date	Location	Type of Violence
1	60	October 1, 2017	Las Vegas, NV	Mass Shooting
2	49	June 12, 2016	Orlando, FL	Mass Shooting
3	32	April 16, 2007	Blacksburg, VA	Mass Shooting
4	27	December 14, 2012	Newtown, CT	Mass Shooting
5	25	November 5, 2017	Sutherland Springs, TX	Mass Shooting
6	23	August 3, 2019	El Paso, TX	Mass Shooting
7	21	May 24, 2022	Uvalde, TX	Mass Shooting

Figure 1. Annual Trends in High-Fatality Mass Shooting Incidents, 1991-2022



Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

Figure 2. Annual Trends in High-Fatality Mass Shooting Fatalities, 1991-2022



Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

II. THE USE OF ASSAULT WEAPONS AND LCMS ARE MAJOR FACTORS IN THE RISE OF MASS SHOOTING VIOLENCE

12. In addition to showing that the frequency and lethality of high-fatality mass shootings are on the rise nationally, the data point to another striking pattern: both assault weapons and LCMs are being used with increased frequency to perpetrate gun massacres.[6] As shown in Figures 3-4, based on high-fatality mass

[6] Assault weapons are generally semiautomatic firearms that fall into one of the following three categories: assault pistols, assault rifles, and assault shotguns. The State of Hawaii only restricts the "manufacture, possession, sale, barter, gift, transfer, or acquisition" of assault pistols. It does not restrict assault rifles and assault shotguns. HRS §§ 134-1, 134-8. LCMs are generally ammunition-feeding devices with a capacity greater than 10 bullets. HRS § 134-8. For purposes of this declaration, unless otherwise stated, assault weapons and LCMs will be defined in a manner consistent with the definitions used in **Exhibit C**. The modern-day roots of the term "assault weapons" can be traced back to the 1980s, when gun

shootings where details are available that allow a determination on the use of assault weapons and LCMs, the pattern is particularly marked of late, with over half of all incidents in the last four years involving assault weapons and all incidents in the last four years involving LCMs having a capacity greater than 10 bullets. As shown in Figures 5-6, a similar pattern is found when examining deaths in high-fatality mass shootings in the last four years, with 62% of deaths resulting from incidents involving assault weapons and 100% of deaths resulting from incidents involving LCMs. These trends clearly demonstrate that, among perpetrators of gun massacres, there is a growing preference for using assault weapons and LCMs to pull off their attacks.[7]

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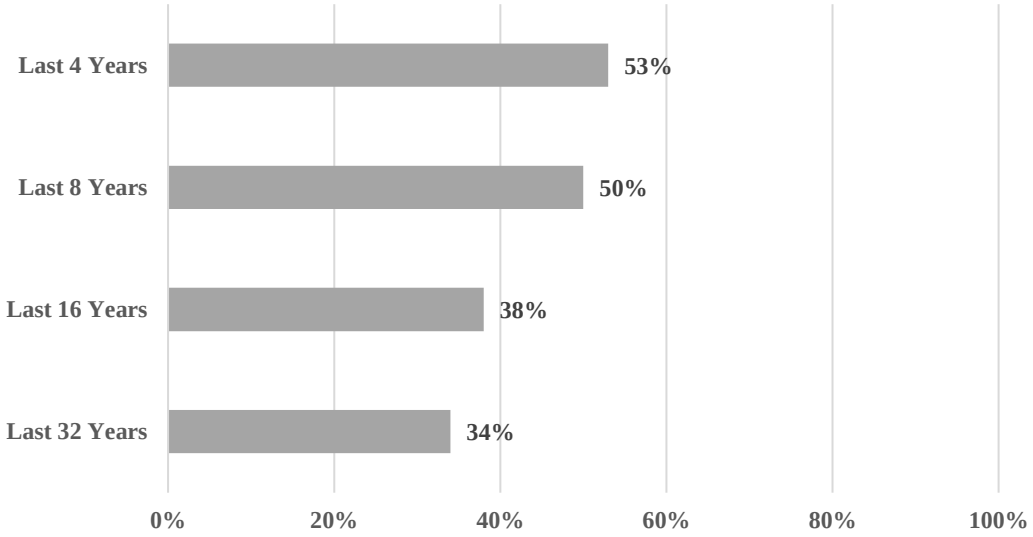
manufacturers branded military-style firearms with the label in an effort to make them more marketable to civilians. *See*, Violence Policy Center, *Assault Weapons and Accessories in America* (1988) (Attached as **Exhibit D**); Violence Policy Center, *Bullet Hoses: Semiautomatic Assault Weapons—What Are They? What's So Bad about Them?* (2003) (Attached as **Exhibit E**); Phillip Peterson, *Gun Digest Buyer's Guide to Assault Weapons* (2008) (Relevant Excerpt Attached as **Exhibit F**); and Erica Goode, "Even Defining 'Assault Rifles' Is Complicated," *New York Times*, January 16, 2013, *available at* https://www.nytimes.com/2013/01/17/us/even-defining-assault-weapons-is-complicated.html (last accessed January 24, 2023).

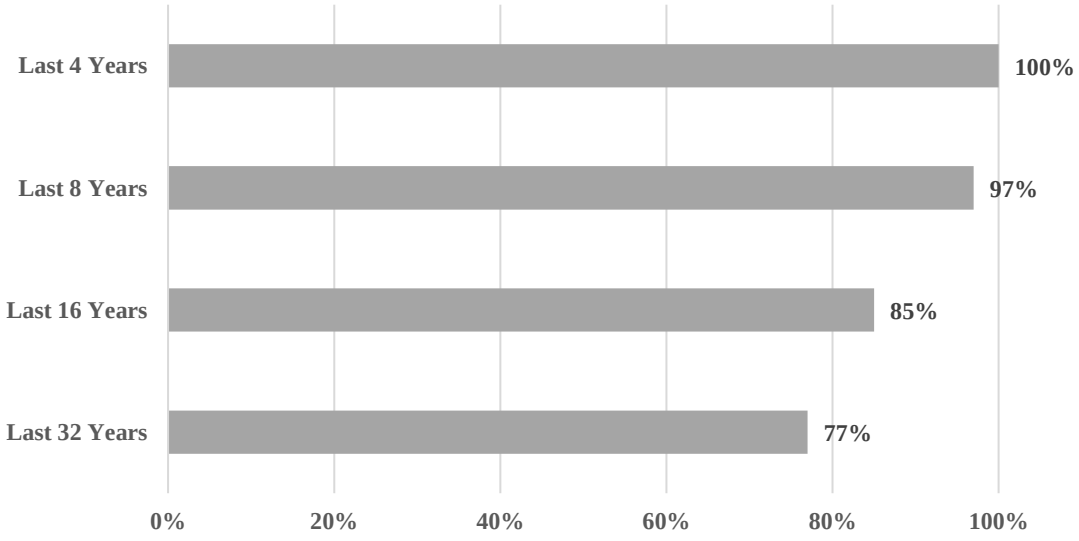
[7] Out of all 93 high-fatality mass shootings in the United States between 1991 and 2022, it cannot be determined whether LCMs were used in 14 of those incidents. Furthermore, for 2 of these 14 incidents, it is also not possible to determine whether they involved assault weapons. Therefore, the tables, figures, and percentages discussed in this section of the Declaration are based on calculations that only use data points from the incidents in which the involvement of assault weapons or LCMs could be determined.

Figure 3. Share of High-Fatality Mass Shooting Incidents Involving Assault Weapons, 1991-2022



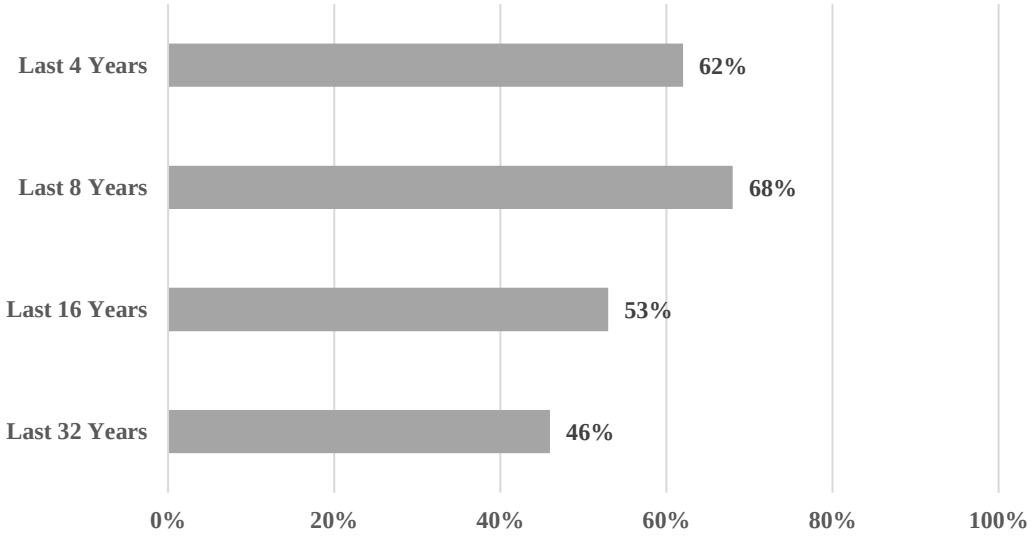
Note: The calculations in Figure 3 exclude incidents in which the firearms used are unknown.

Figure 4. Share of High-Fatality Mass Shooting Incidents Involving LCMs, 1991-2022



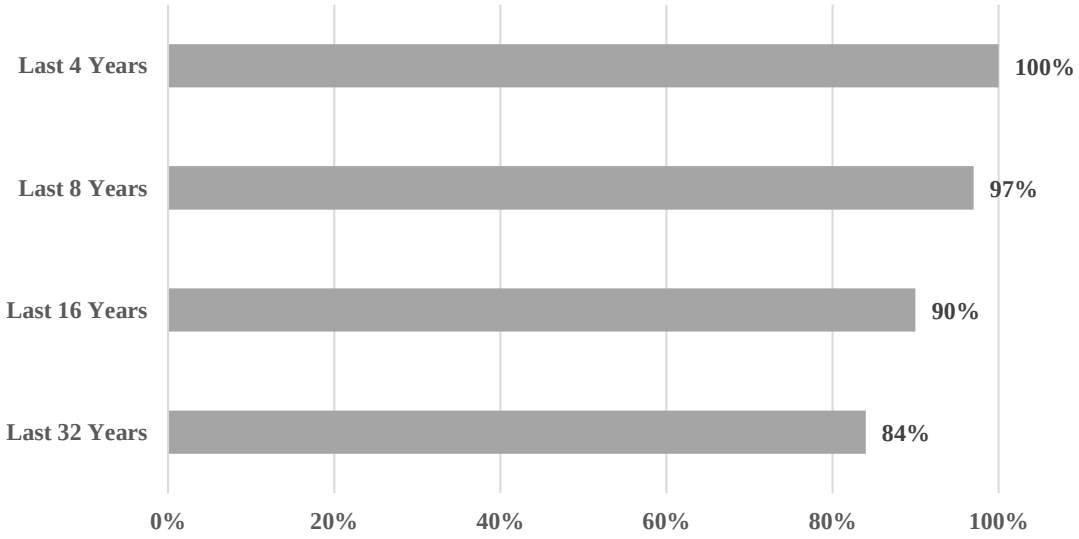
Note: The calculations in Figure 4 exclude incidents in which it is unknown if LCMs were used.

Figure 5. Share of High-Fatality Mass Shooting Deaths Resulting from Incidents Involving Assault Weapons, 1991-2022



Note: The calculations in Figure 5 exclude incidents in which the firearms used are unknown.

Figure 6. Share of High-Fatality Mass Shooting Deaths Resulting from Incidents Involving LCMs, 1991-2022



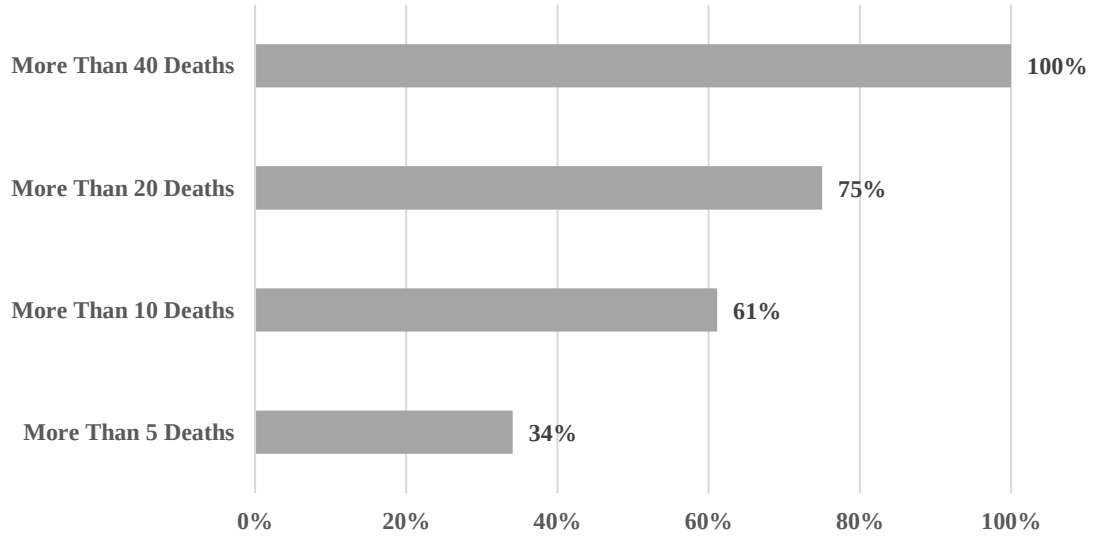
Note: The calculations in Figure 6 exclude incidents in which it is unknown if LCMs were used.

13. The growing use of assault weapons to carry out gun massacres is an obvious theme reflected in the data. Another pattern that stands out when examining the relationship between assault weapons use and mass shooting violence reflects the disproportionately greater lethality associated with the use of assault weapons and LCMs. Returning to the list of the 7 deadliest individual acts of intentional criminal violence in the United States since the coordinated terrorist attack of September 11, 2001, besides all seven of the incidents being mass shootings, two other prominent traits are that 6 of the 7 incidents (86%) involved assault weapons and all 7 incidents (100%) involved LCMs, as shown in Table 2. When examining all high-fatality mass shootings since 1991, the relationship between assault weapons use, LCM use, and higher death tolls is striking. In the past 32 years, assault weapons and LCMs have been used, respectively, in 34% and 77% of all high-fatality mass shootings. However, as the fatality thresholds of such incidents increase, so too do the shares of incidents involving assault weapons and LCMs. For instance, assault weapons and LCMs were used, respectively, in 75% and 100% of all mass shootings resulting in more than 20 deaths (Figures 7-8). As the data show, there is an association between mass shooting lethality and the use of assault weapons and LCMs.

Table 2. The Use of Assault Weapons and LCMs in the Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11

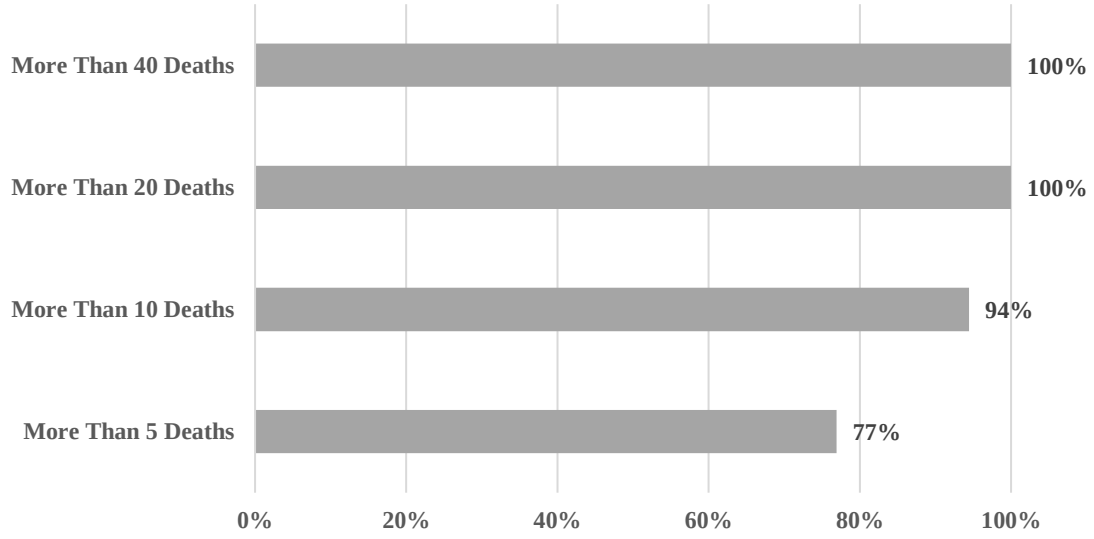
Deaths	Date	Location	Involved Assault Weapons	Involved LCMs
60	10/1/2017	Las Vegas, NV	✓ (AR-15)	✓
49	612/2016	Orlando, FL	✓ (AR-15)	✓
32	4/16/2007	Blacksburg, VA		✓
27	12/14/2012	Newtown, CT	✓ (AR-15)	✓
25	11/5/2017	Sutherland Springs, TX	✓ (AR-15)	✓
23	8/3/2019	El Paso, TX	✓ (AK-47)	✓
21	5/24/2022	Uvalde, TX	✓ (AR-15)	✓

Figure 7. Percentage of High-Fatality Mass Shootings Involving Assault Weapons by Fatality Threshold, 1991-2022



Note: The calculations in Figure 7 exclude incidents in which the firearms used are unknown.

Figure 8. Percentage of High-Fatality Mass Shootings Involving LCMs by Fatality Threshold, 1991-2022



Note: The calculations in Figure 8 exclude incidents in which it is unknown if LCMs were used.

14. Of the 91 high-fatality mass shootings since January 1, 1991, in which the type of firearm used is known, 31 involved assault weapons, resulting in 425 deaths. The average death toll for these 31 incidents is 13.7 fatalities per shooting. By contrast, the average death toll for the 60 incidents in which it is known assault weapons were not used (which resulted in 490 fatalities) is 8.2 fatalities per shooting (Table 3). When gun massacres that involved assault weapons are broken down into sub-categories of assault weapons (**Exhibit C**), there are 25 incidents that involved assault rifles (resulting in 372 deaths) and 6 incidents that involved assault pistols (resulting in 53 deaths). The average death toll for the former is

14.9 fatalities per incident and for the latter it is 8.8 fatalities per incident. Clearly, the use of assault rifles to perpetrate gun massacres, on average, resulted in deadlier outcomes. However, in either case (incidents involving assault rifles or incidents involving assault pistols), the use of assault weapons resulted in higher average death tolls than incidents not involving assault weapons. Furthermore, of the 79 high-fatality mass shootings since January 1, 1991, in which LCM use was determined, 61 involved LCMs, resulting in 704 deaths. The average death toll for these 61 incidents is 11.5 fatalities per shooting. The average death toll for the 18 incidents in which it is known LCMs were not used (which resulted in 132 fatalities) is 7.3 fatalities per shooting (Table 3). In other words, in the last 32 years, the use of assault weapons and LCMs in gun massacres has resulted, respectively, in 67% and 58% increases in average fatalities per incident (Table 3).

15. Table 4 shows the average death tolls per high-fatality mass shooting incident that are attributable to assault weapons beyond deaths associated with the use of LCMs. When LCMs are not used, the average death toll is 7.3 fatalities. When LCMs are used, but not in conjunction with assault weapons, the average death toll is 9.2 fatalities. When LCMs are used with assault weapons, the average death toll is 14.0 fatalities. The data show that using LCMs without an assault weapon resulted in a 26% increase in the average death toll. However, using LCMs with an assault weapon resulted in a 52% increase in the average death toll

associated with incidents that involved LCMs without assault weapons and a 92% increase in the average death toll associated with incidents that involved neither LCMs nor assault weapons. In other words, the increase in the death tolls for high-fatality mass shootings involving assault weapons appears to be partly attributable to LCMs and partly attributable to assault weapons, although as shown in the previous paragraph the bulk of these higher death tolls are associated with assault rifles.

16. This review of the data suggests that assault weapons *and* LCMs are force multipliers when used in mass shootings.

Table 3. The Average Death Tolls Associated with the Use of Assault Weapons and LCMs in High-Fatality Mass Shootings in the U.S., 1991-2022

	Average Death Toll for Incidents That Did Not Involve the Use of …	Average Death Toll for Incidents That Did Involve the Use of …	Percent Increase in Average Death Toll Associated with the Use of …
Assault Weapons	8.2 Deaths	13.7 Deaths	67%
LCMs	7.3 Deaths	11.5 Deaths	58%

Note: The calculations in Table 3 exclude incidents in which the firearms used are unknown.

Table 4. The Average Death Tolls Associated with the Use of LCMs and Assault Weapons in High-Fatality Mass Shootings in the U.S., 1991-2022

Average Death Toll for Incidents Not Involving LCMs or AWs	Average Death Toll for Incidents Involving LCMs but Not AWs	Percent Increase	Average Death Toll for Incidents Involving LCMs but Not AWs	Average Death Toll for Incidents Involving LCMs and AWs	Percent Increase	Average Death Toll for Incidents Not Involving LCMs or AWs	Average Death Toll for Incidents Involving LCMs and AWs	Percent Increase
7.3	9.2	26%	9.2	14.0	52%	7.3	14.0	92%

Note: The calculations in Table 4 exclude incidents in which it is unknown if assault weapons or LCMs were used.

III. DOUBLE-DIGIT-FATALITY MASS SHOOTINGS ARE A POST-WORLD WAR II PHENOMENON IN AMERICAN HISTORY AND THEY INCREASINGLY INVOLVE ASSAULT WEAPONS

17. I have also examined the historical occurrence and distribution of mass shootings resulting in 10 or more victims killed since 1776 (Table 5 and Figure 9). A lengthy search uncovered several informative findings.[8] In terms of the origins of this form of extreme gun violence, there is no known occurrence of a mass shooting resulting in double-digit fatalities at any point in time during the 173-year period between the nation's founding in 1776 and 1948. The first known

[8] I searched for firearm-related "murders," using variations of the term, setting a minimum fatality threshold of 10 in the Newspaper Archive online newspaper repository, *available at* www.newspaperarchive.com (last accessed October 2, 2022). The Newspaper Archive contains local and major metropolitan newspapers dating back to 1607. Incidents of large-scale, inter-group violence such as mob violence, rioting, combat or battle skirmishes, and attacks initiated by authorities acting in their official capacity were excluded.

mass shooting resulting in 10 or more deaths occurred in 1949. In other words, for 70% of its 247-year existence as a nation, the United States did not experience a mass shooting resulting in double-digit fatalities, making them a relatively modern phenomena in American history.[9]

18. After the first such incident in 1949, 17 years passed until a similar mass shooting occurred in 1966. The third such mass shooting then occurred 9 years later, in 1975. And the fourth such incident occurred 7 years after, in 1982. Basically, the first few mass shootings resulting in 10 or more deaths did not occur until the post-World War II era. Furthermore, these first few double-digit-fatality incidents occurred with relative infrequency, although the temporal gap between these first four incidents shrank with each event (Table 5 and Figure 10).[10]

[9] Using the Constitution's effective date of 1789 as the starting point would lead to the conclusion that, for 68% of its 234-year existence as a nation, the United States did not experience a mass shooting resulting in double-digit fatalities.

[10] Figures 9-10 are reproduced in larger form as **Exhibit G** of this Declaration.

Table 5. Mass Shootings Resulting in Double-Digit Fatalities in U.S. History, 1776-2022

	Date	Location	Deaths	Involved Assault Weapon(s)	Involved LCM(s)
1	9/6/1949	Camden, NE	13	N	N
2	8/1/1966	Austin, TX	14	N	Y
3	3/30/1975	Hamilton, OH	11	N	N
4	9/25/1982	Wilkes-Barre, PA	13	Y	Y
5	2/18/1983	Seattle, WA	13	N	N
6	4/15/1984	Brooklyn, NY	10	N	N
7	7/18/1984	San Ysidro, CA	21	Y	Y
8	8/20/1986	Edmond, OK	14	N	N
9	10/16/1991	Killeen, TX	23	N	Y
10	4/20/1999	Littleton, CO	13	Y	Y
11	4/16/2007	Blacksburg, VA	32	N	Y
12	3/10/2009	Geneva County, AL	10	Y	Y
13	4/3/2009	Binghamton, NY	13	N	Y
14	11/5/2009	Fort Hood, TX	13	N	Y
15	7/20/2012	Aurora, CO	12	Y	Y
16	12/14/2012	Newtown, CT	27	Y	Y
17	9/16/2013	Washington, DC	12	N	N
18	12/2/2015	San Bernardino, CA	14	Y	Y
19	6/12/2016	Orlando, FL	49	Y	Y
20	10/1/2017	Las Vegas, NV	60	Y	Y
21	11/5/2017	Sutherland Springs, TX	25	Y	Y
22	2/14/2018	Parkland, FL	17	Y	Y
23	5/18/2018	Santa Fe, TX	10	N	N
24	10/27/2018	Pittsburgh, PA	11	Y	Y
25	11/7/2018	Thousand Oaks, CA	12	N	Y
26	5/31/2019	Virginia Beach, VA	12	N	Y
27	8/3/2019	El Paso, TX	23	Y	Y
28	3/22/2021	Boulder, CO	10	Y	Y
29	5/14/2022	Buffalo, NY	10	Y	Y
30	5/24/2022	Uvalde, TX	21	Y	Y

Note: Death tolls do not include perpetrators. An incident was coded as involving an assault weapon if at least one of the firearms discharged was defined as an assault weapon in (1) the 1994 Federal Assault Weapons Ban or (2) the statutes of the state where the gun massacre occurred. An incident was coded as involving an LCM if at least one of the firearms discharged had an ammunition-feeding device holding more than 10 bullets.

Figure 9. Mass Shootings Resulting in Double-Digit Fatalities in U.S. History, 1776-2022

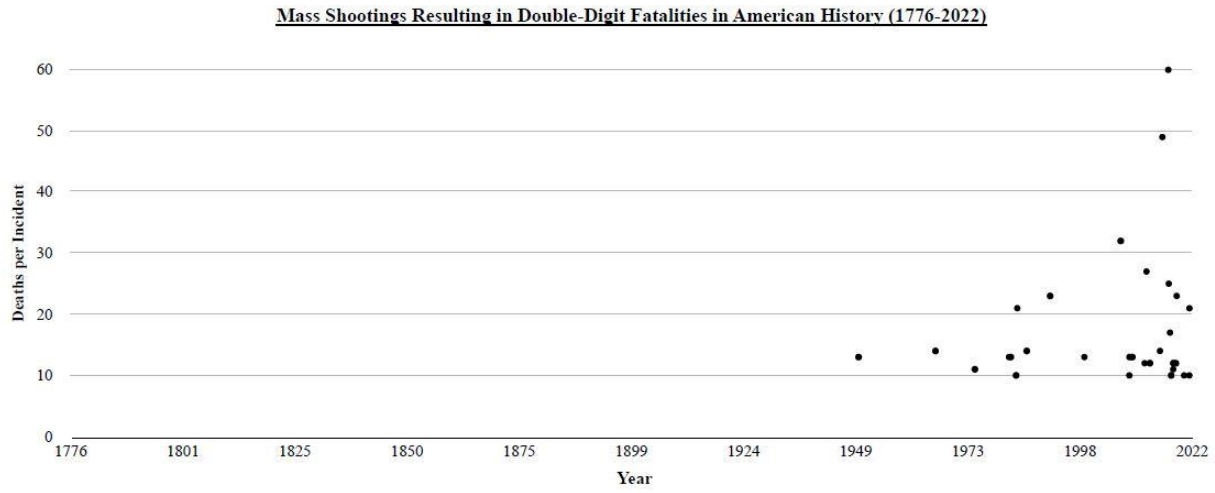
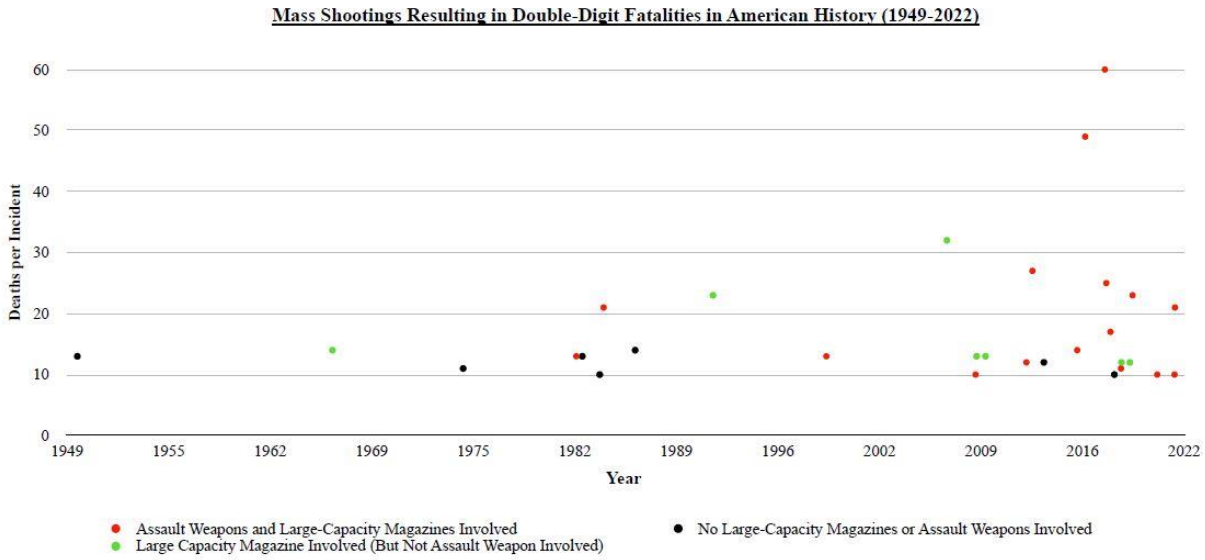


Figure 10. Mass Shootings Resulting in Double-Digit Fatalities in U.S. History, 1949-2022



19. The distribution of double-digit-fatality mass shootings changes in the early 1980s, when five such events took place in a span of just five years. (Table 5 and Figure 10). This timeframe also reflects the first time that assault weapons were used to perpetrate mass shootings resulting in 10 or more deaths: the 1982 Wilkes-Barre, PA, massacre (involving an AR-15 rifle and resulting in 13 deaths) and the 1984 San Ysidro, CA, massacre (involving an Uzi pistol and resulting in 21 deaths). But this cluster of incidents was followed by a 20-year period in which only 2 double-digit-fatality mass shootings occurred (Figure 10). This period of time from 1987-2007 correlates with three important federal firearms measures: the 1986 Firearm Owners Protection Act, the 1989 C.F.R. "sporting use" importation restrictions, and the 1994 Federal Assault Weapons Ban.

20. It is well-documented in the academic literature that, after the Federal Assault Weapons Ban expired in 2004, mass shooting violence increased substantially.[11] Mass shootings that resulted in 10 or more deaths were no

[11] *See*, for example, Louis Klarevas, *supra* note 1 (Relevant Excerpt Attached as **Exhibit H**); Louis Klarevas, et al., *supra* note 2 (Attached as **Exhibit I**); Charles DiMaggio, et al., "Changes in US Mass Shooting Deaths Associated with the 1994-2004 Federal Assault Weapons Ban: Analysis of Open-Source Data," 86 *Journal of Trauma and Acute Care Surgery* 11 (2019) (Attached as **Exhibit J**); Lori Post, et al., "Impact of Firearm Surveillance on Gun Control Policy: Regression Discontinuity Analysis," 7 *JMIR Public Health and Surveillance* (2021) (Attached as **Exhibit K**); and Philip J. Cook and John J. Donohue, "Regulating Assault Weapons and Large-Capacity Magazines for Ammunition," 328 *JAMA*, September 27, 2022 (Attached as **Exhibit L**).

exception, following the same pattern. In the 56 years from 1949 through 2004, there were a total of 10 mass shootings resulting in double-digit fatalities (a frequency rate of one incident every 5.6 years). In the 18 years since 2004, there have been 20 double-digit-fatality mass shootings (a frequency rate of one incident every 0.9 years). In other words, the frequency rate has increased over six-fold since the Federal Assault Weapons Ban expired (Table 5 and Figure 10). (The 1994 Federal Assault Weapons Ban and its impact on mass shooting violence is discussed in further detail in Section IV of this declaration.)

21. Over three-quarters of the mass shootings resulting in 10 or more deaths involved assault weapons and/or LCMs (Table 5). As also shown in the analyses of mass shootings in Section II, death tolls in double-digit-fatality mass shootings are related to the use of firearm technologies like assault weapons and LCMs that, in terms of mass shootings, serve as force multipliers.

IV. RESTRICTIONS ON ASSAULT WEAPONS AND LCMS REDUCE THE INCIDENCE OF GUN MASSACRES, RESULTING IN LIVES SAVED

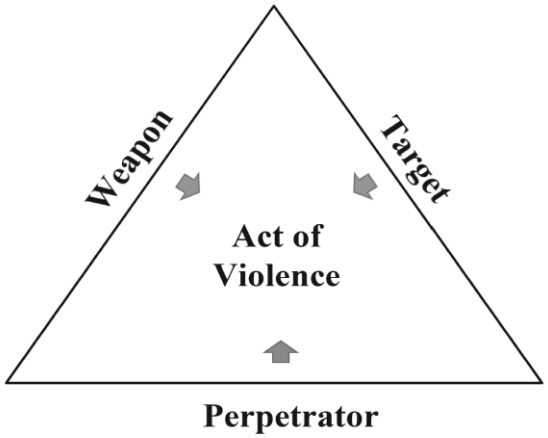
A. THE OPERATIVE MECHANISM OF ASSAULT WEAPONS BANS: SUPPRESSION AND SUBSTITUTION EFFECTS

22. As conceptualized in the Trinity of Violence model that I developed in my book on mass shootings, every act of violence involves three elements: a perpetrator, a weapon, and a target (Figure 11).[12] The key to mitigating violence is

[12] Klarevas, *supra* note 1, at 27-29, 229-238.

to "break the trinity" by hindering at least one of the three elements. This is accomplished by dissuading the potential offender(s), denying the potential instrument(s) of violence, or defending the potential victim(s).[13]

Figure 11. The Trinity of Violence



23. Bans are law-based concepts that prohibit certain behaviors by criminalizing them.[14] Bans on assault weapons and LCMs generally make it illegal to manufacture, import, transfer, own, or possess certain firearms and certain magazines. Bans work in relation to two of the three elements of the Trinity of Violence: dissuasion and denial. With regard to perpetrators, bans use the threat of criminal penalty to *deter potential offenders* from engaging in the prohibited

[13] Ibid.

[14] Philip J. Cook, "Research in Criminal Deterrence: Laying the Groundwork for the Second Decade," 2 *Crime and Justice* 211 (1980); and Daniel S. Nagin, "Deterrence in the Twenty-First Century," 42 *Crime and Justice* 199 (2013).

behavior. In the case of bans on assault weapons and LCMs, they threaten conviction, imprisonment, and/or fines should an individual build or otherwise acquire a prohibited assault weapon or LCM. The primary mechanism at work here centers around dissuading potential shooters from trying to acquire banned firearm technologies. But there is also a secondary mechanism at work, focused on the assault weapon or LCM itself: *deprive potential instruments of violence*. Knowing that someone who is willing to commit murder might not be deterred from violating another criminal law, like possessing a prohibited item, bans on assault weapons and LCMs also threaten punishment against anyone who tries to transfer (through sale, gift, or loan) a restricted item to someone who is prohibited from acquiring it. This, in essence, reinforces the strategy of dissuading the offender with the strategy of denying the instruments of violence.

24. Ideally, someone intent on committing a mass shooting with an assault weapon and/or LCM would be dissuaded from going on a rampage by the fact that their means of choice are not available. In such a scenario, the attack would be quashed. This *suppression effect* is akin to what economists and psychologists refer to as a positive spillover effect, where one desirable outcome produces a second, loosely-related desirable outcome.[15] A real-world example of

[15] Paul Dolan and Mateo M. Galizzi, "Like Ripples on a Pond: Behavioral Spillovers and Their Implications for Research and Policy," 47 *Journal of Economic Psychology* 1 (2015); K. Jane Muir and Jessica Keim-Malpass,

this is the so-called "Matrix Killings," where a 19-year-old Virginia man blamed *The Matrix* film for driving him to murder his parents with a shotgun (that did not have an LCM). At the time of the crime in 2003, the federal Assault Weapons Ban was in effect, preventing him from obtaining an assault rifle and LCMs. In a 2013 jailhouse interview, he told CNN, "If I had an assault weapon, things would have been much worse." He added that had he had an AR-15 instead of a shotgun, he is positive that, after killing his parents, he would have gone on a rampage and "killed as many people as I possibly could." As he noted, "because I didn't have an assault weapon, that didn't happen."[16] In this case, the unavailability of an assault weapon due to the federal ban suppressed the perpetrator's impulse to commit a mass shooting.

25. Of course, some potential mass shooters will not be discouraged from going on a killing spree just because their means of choice are unavailable. They will instead replace their desired instruments of violence with available alternatives. This is commonly referred to as the *substitution effect*, wherein an act of violence is still perpetrated, but with a different, less lethal instrument of

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"Analyzing the Concept of Spillover Effects for Expanded Inclusion in Health Economics Research," 9 *Journal of Comparative Effectiveness Research* 755 (2020).

[16] "Inside the Mind of a Killer," CNN (Transcripts), August 23, 2013, *available at* https://transcripts.cnn.com/show/pmt/date/2013-08-23/segment/01 (last accessed January 24, 2023).

violence.[17] A real-world example of the substitution effect at work is the 2019 synagogue rampage in Poway, California. In that attack, the gunman appears to have been unable to acquire an assault rifle and LCMs due to California's ban on both. Instead, he acquired what is known as a California-compliant semiautomatic rifle (which lacked features such as a pistol grip and a forward hand grip) and 10-round magazines. As a result, the gunman quickly ran out of bullets, and while pausing to reload—which appears to have been extremely difficult given that he did not have assault weapon features on his rifle that facilitated fast reloading—a congregant chased him away, preventing him from continuing his attack.[18] In this incident, which resulted in one death, California's ban on assault weapons and LCMs worked exactly as intended. It prevented the active shooter from being able to kill enough people to surpass the fatality threshold of a mass shooting. Stated differently, if you examine data sets that identify shootings resulting in mass murder, you will not find the Poway synagogue attack on their lists.

[17] Philip J. Cook, "The Effect of Gun Availability on Violent Crime Patterns," 455 *Annals of the American Academy of Political and Social Science* 63 (1981); Anthony A. Braga, et al. "Firearm Instrumentality: Do Guns Make Violent Situations More Lethal?" 4 *Annual Review of Criminology* 147 (2021).

[18] Elliot Spagat and Julie Watson, "Synagogue Shooter Struggled with Gun, Fled with 50 Bullets," Associated Press, April 30, 2019, *available at* https://apnews.com/article/shootings-north-america-us-news-ap-top-news-ca-state-wire-8417378d6b934a8f94e1ea63fd7c0aea (last accessed January 24, 2023).

26. It might seem perverse to think that restrictions on certain instruments of violence operate on the premise that, if an act of violence cannot be averted, then it will proceed with an alternative instrument. Nevertheless, this is exactly how bans on assault weapons and LCMs work in theory. They suppress the inclinations of potential mass shooters to go on killing rampages in the first place because their means of choice are unavailable. And, should deterrence fail, bans force perpetrators to substitute less lethal instruments for more dangerous, prohibited ones, reducing the casualty tolls of attacks when they do occur.

B. THE OPERATIVE MECHANISM OF LCM BANS: FORCING PAUSES IN ACTIVE SHOOTINGS

27. Restrictions on assault weapons and LCMs also address the multiple advantages LCMs provide to active shooters. Offensively, LCMs increase kill potential. Basically, the more bullets a shooter can fire at a target within a finite amount of time, the more potential wounds they can inflict. Furthermore, the more bullets that strike a victim, the higher the odds that that person will die. These two factors—sustained-fire capability and multiple-impact capability—allow LCMs to increase a shooter's kill potential.

28. When inserted into either a semiautomatic or fully-automatic firearm, an LCM facilitates the ability of an active shooter to fire a large number of rounds at an extremely quick rate without pause. This phenomenon—sustained-fire capability—comes in handy when a target is in a gunman's line of sight for only a

few seconds. For example, sustained-fire capability allows a reasonably competent shooter to fire three rounds per second with a semiautomatic firearm and ten rounds per second with an automatic firearm. That results in numerous chances to hit a target in a short window of opportunity, especially when ammunition capacity is large.

29. LCMs also facilitate the ability of a shooter to strike a human target with more than one round. This phenomenon—multiple-impact capability—increases the chances that the victim, when struck by multiple rounds, will die. At least two separate studies have found that, when compared to the fatality rates of gunshot wound victims who were hit by only a single bullet, the fatality rates of those victims hit by more than one bullet were over 60 percent higher.[19] The implication is straightforward: being able to strike human targets with more than one bullet increases a shooter's chances of killing their victims. In essence, LCMs are force multipliers when it comes to kill potential—and the evidence from gun massacres supports this conclusion (*see* Section II).

30. In addition to offensive advantages, LCMs also provide the defensive advantage of extended cover. During an active shooting, a perpetrator is either

[19] Daniel W. Webster, et al., "Epidemiologic Changes in Gunshot Wounds in Washington, DC, 1983–1990," 127 *Archives of Surgery* 694 (June 1992); Angela Sauaia, et al., "Fatality and Severity of Firearm Injuries in a Denver Trauma Center, 2000–2013," 315 *JAMA* 2465 (June 14, 2016).

firing their gun or not firing their gun. While pulling the trigger, it is difficult for those in harm's way to take successful defensive maneuvers. But if the shooter runs out of bullets, there is a lull in the shooting. This precious downtime affords those in the line of fire with a chance to flee, hide, or fight back.

31. There are several examples of individuals fleeing or taking cover while active shooters paused to reload. For instance, in 2012, several first-graders at Sandy Hook Elementary School in Newtown, Connecticut, escaped their attacker as he was swapping out magazines, allowing them to exit their classroom and dash to safety.[20] Other well-known examples include the 2007 Virginia Tech and the 2018 Borderline Bar and Grill rampages.[21] There is also the possibility that someone will rush an active shooter and try to tackle them (or at the very least try to wrestle their weapon away from them) while they pause to reload.[22] In

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[20] *See* Dave Altimari, et al., "Shooter Paused and Six Escaped," *Hartford Courant*, December 23, 2012 (Attached as **Exhibit M**).

[21] Virginia Tech Review Panel, Mass Shootings at Virginia Tech, April 16, 2007: Report of the Virginia Tech Review Panel Presented to Governor Kaine, Commonwealth of Virginia, Revised with Addendum, November 2009, available at https://scholar.lib.vt.edu/prevail/docs/April16ReportRev20091204.pdf (last accessed February 1, 2023); "California Bar Shooting: Witnesses Describe Escaping as Gunman Reloaded," CBS News, December 7, 2018, available at https://www.cbsnews.com/news/borderline-bar-shooting-thousand-oaks-california-12-dead-witnesses-describe-gunman-storming-in (last accessed February 1, 2023).

[22] The longer a shooter can fire without interruption, the longer they can keep potential defenders at bay. The longer potential defenders are kept from physically confronting a shooter, the more opportunity there is for the shooter to inflict damage.

recent history, there have been numerous instances of gunmen being physically confronted by unarmed civilians while reloading, bringing their gun attacks to an abrupt end. Prominent examples include the 1993 Long Island Rail Road, the 2011 Tucson shopping center, the 2018 Nashville Waffle House, and the 2022 Laguna Woods church shooting rampages.[23] When there are pauses in the shooting to reload, opportunities arise for those in the line of fire to take life-saving action.

C. BANS ON ASSAULT WEAPONS AND LCMS IN PRACTICE

32. In light of the growing threat posed by mass shootings, legislatures have enacted restrictions on assault weapons and LCMs in an effort to reduce the occurrence and lethality of such deadly acts of firearm violence. Prominent among these measures was the 1994 Federal Assault Weapons Ban. In September 1994,

[23] *See*, Rich Schapiro, "LIRR Massacre 20 Years Ago: 'I Was Lucky,' Says Hero Who Stopped Murderer," *New York Daily News*, December 7, 2013, *available at* http://www.nydailynews.com/new-york/nyc-crime/lirr-massacre-20-years-lucky-hero-stopped-murderer-article-1.1540846 (last accessed February 1, 2023); Sam Quinones and Nicole Santa Cruz, "Crowd Members Took Gunman Down," *Los Angeles Times*, January 9, 2011, *available at* https://www.latimes.com/archives/la-xpm-2011-jan-09-la-na-arizona-shooting-heroes-20110110-story.html (last accessed February 1, 2023); Brad Schmitt, "Waffle House Hero: Could You Rush Toward a Gunman Who Just Killed People?" *The Tennessean*, April 24, 2018, *available at* https://www.tennessean.com/story/news/crime/2018/04/24/waffle-house-hero-could-you-rush-toward-gunman-who-just-killed-people/543943002 (last accessed February 1, 2023); "Parishioners Stop Gunman in Deadly California Church Attack," NPR, May 16, 2022, *available at* https://www.npr.org/2022/05/16/1099168335/parishioners-stop-gunman-in-california-church-shooting (last accessed February 1, 2023).

moved to action by high-profile shooting rampages that occurred the previous year at a San Francisco law firm and on a Long Island Rail Road commuter train, the U.S. Congress enacted a ban on assault weapons and LCMs that applied to all 50 states plus the District of Columbia, bringing the entire country under the ban.[24]

33. Like the state bans on assault weapons and LCMs that were implemented before it, the federal ban was aimed primarily at reducing mass shooting violence—an objective the ban sought to achieve by prohibiting the manufacture, importation, possession, and transfer of assault weapons and LCMs not legally owned by civilians prior to the date of the law's effect (September 13, 1994).[25] Congress, however, inserted a sunset provision in the law which allowed the federal ban to expire in exactly 10 years, if it was not renewed beforehand. As Congress ultimately chose not to renew the law, the federal ban expired on September 13, 2004. In the aftermath of the federal ban's expiration, mass shooting violence in the United States increased substantially.[26]

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[24] Pub. L. No. 103-322, tit. XI, subtit. A, 108 Stat. 1796, 1996-2010 (codified as former 18 U.S.C. § 922(v), (w)(1) (1994)).

[25] Christopher Ingraham, "The Real Reason Congress Banned Assault Weapons in 1994—and Why It Worked," *Washington Post*, February 22, 2018, *available at* https://www.washingtonpost.com/news/wonk/wp/2018/02/22/the-real-reason-congress-banned-assault-weapons-in-1994-and-why-it-worked (last accessed January 2, 2023).

[26] *See* sources cited *supra* note 11.

34. The legislative intent of Hawaii is similar to that of other legislative bodies that have restricted assault weapons and LCMs: reducing gun violence, especially the frequency and lethality of mass shootings. Because, on average, the use of assault weapons and LCMs results in higher death tolls in mass shootings, the rationale for imposing restrictions on assault weapons and LCMs is to reduce the loss of life associated with the increased kill potential of such firearm technologies.

35. Currently, 30% of the U.S. population is subject to a ban on both assault weapons and LCMs. The following is a list of the ten state-level jurisdictions that presently restrict both assault weapons and LCMs: New Jersey (September 1, 1990); Hawaii (July 1, 1992, assault pistols only); Maryland (June 1, 1994, initially assault pistols but expanded to long guns October 1, 2013); Massachusetts (July 23, 1998); California (January 1, 2000); New York (November 1, 2000); the District of Columbia (March 31, 2009); Connecticut (April 4, 2013); Delaware (August 29, 2022); and Illinois (January 10, 2023).[27] As a reminder, from September 13, 1994, through September 12, 2004, the entire country was also subject to a federal ban on both assault weapons and LCMs.

[27] The dates in parentheses mark the effective dates on which the listed states became subject to bans on both assault weapons and LCMs.

36. In the field of epidemiology, a common method for assessing the impact of laws and policies is to measure the rate of onset of new cases of an event, comparing the rate when and where the laws and policies were in effect against the rate when and where the laws and policies were not in effect. This measure, known as the incidence rate, allows public health experts to identify discernable differences, while accounting for variations in the population, over a set period of time. Relevant to the present case, calculating incidence rates across states, in a manner that captures whether or not bans on both assault weapons and LCMs were in effect during the period of observation, allows for the assessment of the effectiveness of such bans. In addition, fatality rates—the number of deaths, per population, that result from particular events across different jurisdictions—also provide insights into the impact bans on assault weapons and LCMs have on mass shooting violence.[28]

37. Since September 1, 1990, when New Jersey became the first state to ban both assault weapons and LCMs, through December 31, 2022, there have been

[28] For purposes of this declaration, incidence and fatality rates are calculated using methods and principles endorsed by the Centers for Disease Control. *See* Centers for Disease Control and Prevention, *Principles of Epidemiology in Public Health Practice: An Introduction to Applied Epidemiology and Biostatistics* (2012), *available at* https://stacks.cdc.gov/view/cdc/13178 (last accessed January 3, 2023).

93 high-fatality mass shootings in the United States (**Exhibit C**).[29] Calculating incidence and fatality rates for this time-period, across jurisdictions with and without bans on both assault weapons and LCMs, reveals that states subject to such bans experienced a 56% decrease in high-fatality mass shooting incidence rates. States that restrict both assault weapons and LCMs also experienced a 66% decrease in high-fatality mass shooting fatality rates, regardless of whether assault weapons or LCMs were used (Table 6).[30]

38. When calculations go a step further and are limited to mass shootings involving assault weapons or LCMs, the difference between the two jurisdictional categories is even more pronounced. In the time-period from January 1, 1991, through December 31, 2022, accounting for population, states with bans on both assault weapons and LCMs experienced a 62% decrease in the rate of high-fatality mass shootings involving the use of assault weapons or LCMs. Similarly,

[29] There were no state bans on both assault weapons and LCMs in effect prior to September 1, 1990. Therefore, January 1, 1991, is a logical starting point for an analysis of the impact of bans on assault weapons and LCMs. As there were no high-fatality mass shootings in the last four months of 1990, extending the analysis back to September 1, 1990, would make no difference.

[30] Between September 13, 1994, and September 12, 2004, the Federal Assault Weapons Ban was in effect. During that 10-year period, all 50 states and the District of Columbia were under legal conditions that restricted assault weapons and LCMs. As such, the entire country is coded as being under a ban on both assault weapons and LCMs during the timeframe that the Federal Assault Weapons Ban was in effect.

jurisdictions with such bans in effect experienced a 72% decrease in the rate of deaths resulting from high-fatality mass shootings perpetrated with assault weapons or LCMs (Table 6).[31]

39. All of the above epidemiological calculations lead to the same conclusion: when bans on assault weapons and LCMs are in effect, per capita, fewer high-fatality mass shootings occur and fewer people die in such shootings—especially incidents involving assault weapons or LCMs, where the impact is most striking.

40. The main purpose of bans on assault weapons and LCMs is to restrict the availability of assault weapons and LCMs. The rationale is that, if there are fewer assault weapons and LCMs in circulation, then potential mass shooters will either be dissuaded from attacking or they will be forced to use less-lethal firearm technologies, resulting in fewer lives lost.

[31] While numerous states restrict assault weapons, Hawaii is the only state in the United States that restricts *only* assault pistols, and there has never been a high-fatality mass shooting in Hawaii involving an assault pistol. Assessing the effect of Hawaii's assault pistol ban by comparing it to the other 49 states plus the District of Columbia will only show that Hawaii has avoided any such incidents. However, it is important to remember the broader context in this comparison, which is that there have been 6 high-fatality mass shootings involving assault pistols in the United States between 1990-2022. Regardless, the key takeaway from the epidemiological analysis in this section is that states that restrict assault weapons *of any kind* and LCMs experience fewer gun massacre incidents and deaths, per capita, than those states that do not restrict these firearm technologies.

41. Moreover, forcing active shooters to reload creates critical pauses in an attack. These pauses provide opportunities for people in the line of fire to take life-saving measures (such as fleeing the area, taking cover out of the shooter's sight, and fighting back), which in turn can help reduce casualties.

42. The epidemiological data lend support to the policy choices of Hawaii that seek to enhance public safety through restrictions on civilian access to certain types of firearms and magazines. While imposing constraints on assault weapons and LCMs will not prevent every mass shooting, the data suggest that legislative efforts to restrict such instruments of violence should result in lives being saved.

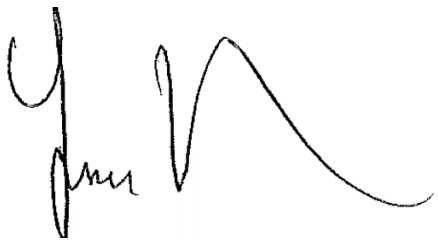
Table 6. Incidence and Fatality Rates for High-Fatality Mass Shootings, by Whether or Not Bans on Assault Weapons and LCMs Were in Effect, 1991-2022

	Annual Average Population (Millions)	Total Incidents	Annual Incidents per 100 Million Population	Total Deaths	Annual Deaths per 100 Million Population
All High-Fatality Mass Shootings					
Non-Ban States	162.0	68	1.31	720	13.89
Ban States	135.8	25	0.58	208	4.79
Percentage Decrease in Rate for Ban States			56%		66%
High-Fatality Mass Shootings Involving Assault Weapons or LCMs					
Non-Ban States	162.0	47	0.91	575	11.09
Ban States	135.8	15	0.35	135	3.11
Percentage Decrease in Rate for Ban States			62%		72%

Note: Population data are from U.S. Census Bureau, "Population and Housing Unit Estimates Datasets," *available at* https://www.census.gov/programs-surveys/popest/data/data-sets.html (last accessed January 3, 2023).

I declare under penalty of perjury that the foregoing is true and correct.

DATED: Nassau County, New York, February 14, 2023.



LOUIS KLAREVAS